CLAIMS

1. A method for pulse heat treatment of bulk materials comprising steps of evaporating surface moisture, fast heating to a required temperature and consequent cooling wherein particles are fed on a rotating surface heated to a temperature higher than 100°C, the contact of the particles with the heated surface is due to centrifugal forces; the time of the contact and the force pressing particles against the surface are controlled by changing the speed of rotation; and a step of quenching is carried out on the surface of a cooler by fact cooling and collecting the finished product in a storage, **characterized** in that the treatment of moving particles of a bulk material is carried out on a vertical cylindrical or a vertical conical surface wherein the steps of evaporating excess moisture and heating to a required temperature are combined; the time of material moving along the heated surface under the action of gravitational force is controlled by frictional force, and the frictional force is regulated by changing the speed of rotation.

2. A method according to claim 1, **characterized** in that the bulk material having a moisture content of not more than 5.0 wt% is fed in the form of extrusion granules.

3. A method according to claim 1, **characterized** in that the pulse heating is carried out on the inner surface of the vertical rotating drum of a cylindrical or conical shape with the material being fed at the upper end of the drum from above.

4. A method according to claim 1, **characterized** in that the time of movement of the treated material along the rotating heated surface is increased with an increase in the speed of rotation.

5. A method according to claim 3, **characterized** in that the productivity of an activator under the condition of a predetermined contact time is increased by increasing the drum diameter with simultaneous decreasing the speed of rotation.

6. A method according to claim 1, **characterized** in that depending on the diameter of a drum selected for certain productivity the initial material is fed on one or more sectors of the distributing ring from above, wherein the number of the sectors depends on spreading the material on the drum surface without areas of spreading overlapping each other.

7. A method according to claim 1, **characterized** in that the quenching step is carried out on the surface of the cooler arranged below the drum by fast cooling to a temperature not higher than 150°C for not more than 3s.

8. A method according to claim 1, **characterized** in that the total time of the treatment at all stages is not less than 3 s.

9. A device for pulse heat treatment of bulk materials, said device comprising a thermally insulated housing with a cover; a vertical shaft with an electric drive; a surface fixed to the shaft and heated by attached heating elements; a unit for metered feeding of an initial material and water vapor withdrawal; and a quenching cooler and a storage in the lower part of the housing, **characterized** in that a hollow drum with a distribution ring is mounted on the vertical rotatable shaft below on a hub, said shaft is arranged in a cooled housing with bearings placed on the cover; there is a gap between the ring and the drum; an initial bulk material is fed in the gap zone through one or more inclined ducts.

10. The device according to claim 9, **characterized** in that the heating elements are located outside and/or inside the drum.

11. The device according to claim 9, **characterized** in that the diameter of the distribution ring is smaller than the drum diameter by the size of a gap of 2-5 mm and is inclined to the drum at an angle from 0 to 30° to horizontal line.

12. The device according to claim 9, **characterized** in that the drum, the distribution ring and the hub are connected by ribs forming a solid unit.

13. The device according to claim 9, **characterized** in that the surface of the quenching cooler is conical with inclination downwards or cylindrical with a conical widening at the top.

14. The device according to claim 9, **characterized** in that the quenching cooler is divided inside by solid partitions along its height into two or more sections with inlet and outlet connecting tubes for a refrigerant in each section.

15. The device according to claim 14, **characterized** in that the surface of the cooler inside a chamber is protected by a parallel screen along the whole height.

16. The device according to claim 9, **characterized** in that the wall of the storage is an extension of the inner cooler wall, it has outside heat insulation and a gap between the walls to avoid heat transfer between them.

17. The device according to claim 9, **characterized** in that there is a distribution ring outside the storage wall with openings into the storage; said openings have a protecting collar from above.

18. The device according to claim 9, **characterized** in that there is an outlet tube for removing superheated vapor, said tube is located under the cover and connected to the ventilator.

19. The device according to claim 18, **characterized** in that opposite to said outlet tube an inlet tube with controllable gate is arranged for supplying air for partial cooling of the shaft and/or for controlling pressure in the activator.

20. The device according to claim 18, **characterized** in that a blocking the outlet metering device with a drive is arranged in the lower zone of the storage.